

CLAIMS

1. A variable power optical system composed of a first optical part for refraction, a second optical part for reflection or transmission, and a third optical part for refraction, with the first optical part being movable with respect to the second and third optical parts to change the focal length of the entire system, wherein

the second optical part or the third optical part has a guide which is in contact partly with the first optical part in such a way as to restrict its moving direction and the first optical part is movably held between the second optical part and the third optical part.

2. The variable power optical system according to Claim 1, wherein

the first optical part has a first lens and a second lens and constitutes, in combination with the second optical part, an afocal system such that the first optical part moves in the direction perpendicular to the optical axis of the first and second lenses over a distance between the position on the optical system of the entire system and the position of retraction from the optical axis of the entire system.

3. The variable power optical system according to Claim 2, wherein

the light that has passed through the first lens is reflected by the second optical part, with its optical path diverted at right angles, and then passes through the second lens.

4. The variable power optical system according to Claim 1, wherein

the first optical part is a molded product formed from a plastics material.

5. A variable power optical system composed of a movable optical part for refraction and a plastics stationary optical part which functions as a base to support the movable optical part and has a lens formed integrally therewith, with the movable optical part being movable with respect to the stationary optical part to change the focal length of the entire system, wherein

the stationary optical part has a guide formed integrally therewith which is in contact partly with the movable optical part in such a way as to restrict its moving direction.

6. The variable power optical system according to Claim 5, wherein

the fixed optical part has a recess to receive a lens on the opposite side of the guide.

7. The variable power optical system according to Claim 5, which has a movable lens for the light which has passed through the movable optical part and the stationary optical part so that the movable lens together with the lens of the stationary optical part constitute an image-forming optical system and the stationary optical part is provided with a mechanism to drive the movable lens.

8. An image-recording device which has an image-forming optical system and an imaging device placed at the focal plane and which is constructed such that one of optical parts is moved to change the focal length of the entire system, wherein

the optical system comprises a first optical part for refraction, a second optical part for reflection or transmission, and a third optical part for refraction, wherein the second optical part or the third optical part has a guide which is in contact partly with the first optical part in such a way as to restrict its moving direction and the first optical part is movably held between the second optical part and the third optical part.

9. The image-recording device according to Claim 8, wherein

the first optical part has a first lens and a second lens and constitutes, in combination with the second optical part, an afocal system such that the first optical part

moves in the direction perpendicular to the optical axis of the first and second lenses over a distance between the position on the optical system of the entire system and the position of retraction from the optical axis of the entire system.

10. The image-recording device according to Claim 9, which is constructed such that light that has passed through the first lens is reflected by the second optical part, with its optical path diverted at right angles, and then passes through the second lens.

11. The image-recording device according to Claim 8, wherein

the first optical part is a molded product formed from a plastics material.

12. An image-recording device which has an image-forming optical system and an imaging device placed at the focal plane and which is constructed such that one of optical parts is moved to change the focal length of the entire system, which has a variable power optical system composed of a movable optical part for refraction and a plastics stationary optical part which functions as a base to support said movable optical part and has a lens formed integrally therewith, wherein

the stationary optical part has a guide formed inte-

grally therewith which is in contact partly with the movable optical part in such a way as to restrict its moving direction.

13. The image-recording device according to Claim 12, wherein

the fixed optical part has a recess to receive a lens on the opposite side of the guide.

14. The image-recording device according to Claim 12, which has a movable lens for the light which has passed through the movable optical part and the stationary optical part so that the movable lens together with the lens of the stationary optical part constitute an image-forming optical system and the stationary optical part is provided with a mechanism to drive the movable lens.